INDIANA OFFICE OF TECHNOLOGY

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STATE OF INDIANA 2009-2010 TECHNOLOGY ROADMAP

Definitions

Legacy	Identify existing, in-use technology that we want to stop using and replace ASAP.
Current	Existing standards.
Future	Recommendations/expectations out 5 years.

Customer Service

Legacy	Existing automatic call distribution system has technical limitations that do not support our future direction
Current	Perimeter Technology VU-ACD/100 Version 3.0 Standard Edition Software
Future	Establish a single call center (with single 800 number) with routing to appropriate agency/division/department.

Networks

Wireless – 802.11 Based

Legacy

Non-IOT Sponsored connectivity solutions such as retail based wireless devices or those devices not designed and deployed by IOT staff that do not support minimum security standards such as AES encryption or RADIUS Authentication.

Current

Mix of Non-Supported (Retail Based) wireless and Supported (IOT Service Offering). The IOT local wireless service offering affords users wireless access on IGC campus and remote sites via a centrally-managed and secure wireless solution.

Customers using a PC with specific wireless and security capabilities can take advantage of this Active Directory integrated secure wireless solution. The costs of the indoor access point, wireless controller, its management console, redundant authentication servers, support and maintenance of the centrally-located and managed equipment are included in the per access point, monthly subscription fee.

The service does not include outdoor wireless solutions, site surveys or solution specific hardware. Contractor and guest access can also be provided securely via each access point.

Future

- Support for Voice, Video and Data over the same infrastructure.
- Location services for asset tracking.
- Remove all non-IOT solution based wireless.
- Expansion to State of Indiana connected sites as required for Inter-Agency sharing.

Networks

Wireless – Cellular

Legacy	Non-IOT Sponsored connectivity solutions such as…… (none at this time)
Current	IOT supports 1800 Blackberry devices and 8270 Cellular phones and aircards. Users connect thru 2 enterprise Blackberry Servers and utilize VPN to connect with aircards.
Future	Researching and considering Windows Mobile based devices at this time. WiMAX evolution and new higher speed next generation cellular based data networks.

Networks

Wired

Legacy

- Non-IP based LAN Protocols – IPX, SNA, DLSW.
- Non-IP based Routing Protocols – IPX-EIGRP, IPX-NLSP, RIP.
- Non-Ethernet based transport for LAN traffic – No Token Ring or Coaxial for Mainframe LUs in the user community.
- Non-IOT Sponsored connectivity solutions; hubs or retail based wireless, routing or switching devices
- Non-Manageable switching devices with new manageable devices that meet IOT minimum specifications.
- Internet Service Provider Dialup solutions

Current

A single vendor standard is hereby established for data network hardware, including switches, routers, wireless access points and firewalls. The vendor selected is Cisco Systems, Inc. Standard hardware configuration designs will be utilized to minimize deployment times and provide high performance, scalable, secure networking solutions.

Future

- Migrate from Serial to Ethernet based connectivity/services when/where available at State-based agency/county offices for increased speed for the next phase of Voice/Video/Data on the LAN.
- Implement a shared network connection where multiple State Agencies reside at the same location
- Add DWDM ring downtown to add redundancy to campus sites and MAN connected sites in the metro Indy area.
- Port based access restrictions on wired infrastructure to match wireless environment.
- IP only based Communications - Voice, Video and Data on the same cable plant and network infrastructure.
- Redundant Internet Service Provider connectivity.
- VPN over Wireless, xDSL, or cable as the backup for the primary WAN/Remote office link.
- Included Power over Ethernet to provide electrical needs for IP based Phones, Wireless Access Points, Video Cameras and other capable devices.
- IOT is “The” Service Provider for all connectivity and communications infrastructure needs for State Agencies.
- Energy Management to improve Green practices across the entire Corporate Infrastructure

Telecommunication

Legacy	Centrex Systems:	2 Nortel DMS100, 43 Miscellaneous CO's
	PBX Systems:	Nortel Meridian/1000M, Tadiran Coral III, ROLM 9751, Mitel SX-200.
	KTS Systems:	Nortel Norstar/BCM, Toshiba DK, NEC/TIE/Nitsuko, Comdial, Avaya, Inter-Tel, Macro-Tel, Tadiran, Atlas, Panasonic and Vodavi.
	Cable Structure:	Category 3 1 pair for Phone Category 3/5 Data
Current	PBXs	49 Nortel (1000M, 1000M-SG), 5 Tatiran, 2 Siemens /ROLF, 3 Mitel, 1 Comdial
	Key Phone Systems	150 Nortel BCMs, 354 Nortel Northstar, 21 Toshiba, 10 Cisco, 10 NEC/Tie/Nitsuku, 6 AT&T, 1 Comdial, 1 Tatiran, 1 Atlas, 1 Panasonic, 1 Vodavi
	PSTN Services	Gigaman, PRI, Centrex, T-1, DS3, Ground Start Trunks, Loop Start Lines, POTs, 50,575 known Lines.
	Wiring Plant	Category 6 standard for new Phone and Data installs. 50 Micron Standard for new fiber installs.
Future	PBX/KTS Systems	When replacing obsolete systems evaluate the viability of an IP based solution.
	Wiring Plant	Replace DID/DOD Trunks with PRIs for PBX Systems. Replace sites with >7 POTS Lines with PRI. Standardize Remote Office wiring: • Dual cat 6 drops (minimum) • Standard secured communications infrastructure cabinet • Environmental monitoring and UPS
	Service	Implement standard pricing model for all IP-Based voice/video services. Develop Standardization/consolidation strategies for: • Contact Center • Unified Messaging • Call Accounting and Call Recording • IVR/ACD systems • Video Conferencing

Servers

Legacy		
Current	The State of Indiana has selected Dell Computer Corporation as the standard for Intel processor-based server hardware. The current support standard configurations are: • Small workloads • Medium workloads • Large workloads • At this time, the State of Indiana does not authorize the use of AMD processors in server platforms.	Dell PowerEdge R610 Dell PowerEdge R710 Dell PowerEdge R900
Future	Dell will be continually revamping its server lineup and IOT will update the standard server configurations accordingly.	

Mainframes

Legacy

- VTAM sub-area technology utilizing NCP - We are no longer using sub-area connections, just APPN connections (current technology).
- 3745 and 3174 SNA hardware technology - All of this hardware has been inactivated and is no longer in use.
- IBM AnyNet technology to provide connections from mainframe CICS and DB2 subsystems to remote AS/400 systems - AnyNet has been removed from the system. The AS/400s are now using APPN Enterprise Extender connections. (current technology).
- Mainframe disaster recovery procedures have in the past consisted of restoration of software and applications to a DR vendor such as SunGuard – We are now providing for Disaster Recovery with a dedicated z9 mainframe at the DR site at IU Bloomington.
- TN3270 access provided by agency selected emulation software from various vendors and offering varying degrees of support – This is still a valid statement.

Current

- All communications to and from the mainframe will use the TCP/IP protocol if at all possible, unless some restriction forces the use of pure SNA. The use of older SNA protocols and hardware will be strongly discouraged – most of the older SNA protocols are no longer possible, as we do not have the hardware any longer.
- VTAM APPN technology utilizing Enterprise Extender.
- All 3174 network hardware has been removed, and mainframe consoles now use TCP/IP based Integrated Console Controller connections.
- A new z/VM environment, which currently serves up several virtual z/Linux servers.
- New high speed HiperSocket connections have been established between the production LPAR, test LPARs, and the z/MV and z/Linux LPARs. This will aid in agencies wishing to preserve their backend data, while exploring new ways to present the data to their users (web front end on Linux).

Future

- Migrate to VTAM APPN technology to provide communications with government agencies and vendors outside of the State's SNA network - This has been completed.
- Identify SNA traffic utilizing the 3745 and 3174 hardware and migrate this traffic to TCP/IP – This has been completed.
- Migrate to IBM VTAM Enterprise Extender as a supported replacement for applications currently using the IBM AnyNet product – This has been completed.
- Implement new disaster recovery procedures with data replication to the DR mainframe located at Indiana University – This has been completed.
- Implement an enterprise wide method of providing fully supported TN3270 emulation software to all State agencies – No significant progress has been made with this task, and it is still probably considered a desirable goal. In preparation to move our Bluezone software to the z/Linux environment.
- Migrate the DB2Connect environment completely to the z/Linux environment.
- Complete migration of the majority of file transfers to the Federal Government to the new CyberFusion product, instead of ConnectDirect..
- Additional applications for the z/VM and z/Linux environment.
- Continue to find and consolidate or eliminate redundant software on the mainframe for cost savings.

Database

Legacy

SQL 7.0, SQL 2000, IDMS, IMS, Oracle 8/9

Current

Usually 1 release/update behind.

Operating System	DBMS Choices
z/OS	DB/2
UNIX	Oracle or DB/2
Windows Server	SQL Server or Oracle
Windows "x"	MS/Access

Future

- Stay current with database software releases. Apply and test service packs and security patches to meet state security guidelines.
- Promote data encryption and other security measures for at-risk data using new database technology.
- Build high-availability, shared database environments to allow flexibility, scalability and cost reduction.
- Continue to automate and grow backup environments to meet onsite recoverability and offsite DR needs.

Data Management

Legacy	
Current	The Indiana Office of Technology hereby establishes EMC hardware as the sole standard for storage systems. IOT is charged with managing and maintaining a centralized storage infrastructure.
Future	The storage of State of Indiana owned data and information will be managed utilizing technology with built-in growth capabilities. Server and storage farms will be provided for agencies to acquire growth as business needs dictate.

Workstations

General

Acquisition Protocols (who to call, what forms to fill out, use of Peoplesoft?, etc). Web-based request system is coming!

Legacy

Current

- Dell is the standard vendor. IOT purchases and supports the desktop environment on a 4 year scheduled refresh.
- Admin Rights only authorized by Security Coordinators (and limited).
- Software distribution is automated and packaged with hardware refresh.
- Users store data on the local desktop, currently being migrated to network with hardware refresh.

Future

- Remote Hardware KVM capabilities to increase support response time on all desktops and laptops.
- Admin rights are no longer authorized outside of IOT technicians and limited for them.
- Baseline security model on all desktops with rollout of Windows 7.
- USB use controlled and limited to authorized encrypted devices.

Peripherals

General	• Acquisition Protocols (who to call, what forms to fill out, use of Peoplesoft?, etc) • Use of State Rental Agreements (instead of agency/department rental agreements)
Legacy	Agencies purchase peripherals outside of printers without approval process.
Current	Peripherals are typically selected by agencies with review/approval by IOT.
Future	• Managed print services will be implemented. Print assets will be owned and managed by provider and scaled to maximize cost effectiveness per page based on business needs. Print redirection will be automated and logs will be produced for review as necessary. • Will be standardized for major devices. • Web-base approval and acquisition.

Applications

Automation

Legacy	
Current	All state applications will be packaged and automated for deployment and configuration. All agencies will use the same images as new technology (Softricity/Microsoft App-V) virtualizes applications allowing them to run without affecting other applications or the base image. This has been implemented with the refresh schedule and is estimated completion by 2012.
Future	Applications will be reviewed and updates packaged on a regular schedule with IOT/agency cooperation.

Applications

Data Warehouse

Legacy	Information and data storage is largely transaction based, allowing limited manipulation and analysis without specialized queries and program development.
Current	Access and management of data & information within and across agencies is partially implemented within a few agencies via data warehouses.
Future	Data warehouse technology will create information management tools for agencies to manage daily service deliver operations, while provide access to data banks and data bases for analysis, forecasting, research and other uses of information maintain on an internal and external basis.

Applications

Database Connectivity

Legacy	Data & information sharing among agencies is depended on file transfers (cd, dvd, diskettes, external storage devices), data base interface tables, ftp mechanisms, etc.
Current	The development of shared connectivity via enterprise service bus (ESB) technology is available to agencies from one of three vendors (IBM, Microsoft and Oracle). Each agency should conduct a proof of concept effort with one or all of the vendors to determine which one would best suit the needs of the agency, the business and technology requirements.
Future	Connectivity to data base information across agency boundaries will be ready available utilizing technologies like ESB.

Applications

Documents & Information

Legacy	Agencies have used a variety of document managements systems, such as FileNET, file shares and web-based systems.
Current	The Indiana Office of Technology hereby establishes Oracle Universal Content Management (UCM) and the standard for enterprise content management and document management. IOT will host a shared environment for all agencies to utilize for these purposes. Microsoft SharePoint will continue to be utilized for workgroup or smaller content / document management systems.

Applications

HR and Financials

Legacy	Agencies began using Peoplesoft HR in 1998. Full adoption of Peoplesoft occurred in 2009 with the completion of Encompass for financials.
Current	The Indiana Office of Technology hereby establishes PeopleSoft as the sole standard for all Human Resources and Financial Management systems and shall refer to all such implementations as "Government Management Information Systems (GMIS)". State agencies developing new or significantly enhanced applications to address these functional areas will use GMIS. The PeopleSoft Human Resources modules include the Time and Labor module, this will be the standard for electronic time reporting. The Indiana Office of Technology must approve any deviations from this policy.

Applications

Business Intelligence

Legacy	Agencies have utilized a variety of solutions for BI.
Current	The Indiana Office of Technology is implementing Oracle OBIEE as a shared service option for agencies. The tool integrates well with PeopleSoft, which as noted previously is the sole standard forall Human Resources and Financial Management systems. . The Indiana Office of Technology must approve any deviations from this policy.

Applications

Geographic Information Systems

Legacy	Applications generally are agency specific. Consideration has been provided for applications that necessary for state-wide management of key functions common across agencies.
Current	The Indiana Office of Technology hereby establishes Environmental Systems Research Institute, Inc. (ESRI) software as the sole standard for all Geographic Information Systems. State agencies developing new or significantly enhanced GIS applications will use ESRI software.
Future	Enterprise-wide applications will be addressed through the governance component of the technology plan and roadmap.

Applications

Mobile

Legacy	Mobile devices are unable to render complex web content
Current	All executive branch agencies and a few separately elected officials have a mobile website available. Initial applications were developed as a prototype.
Future	Processes and resources will be identified to assist agencies with additional mobile applications that will provide online services pertinent to a citizens mobile needs.

Applications

Web-Based

Legacy	Web-based and Internet applications are utilize multiple platforms and tools to develop, test, maintain and deploy. Technical resources are not available to keep pace with application demands.
Current	Internal and external development processes are being utilized by agencies. A statewide initiative to redesign all state agency sites and implement the web content management solution (CMS) is in progress.
Future	Processes and resources will be identified to assist agencies with web application development and production client/citizen electronic service centers.